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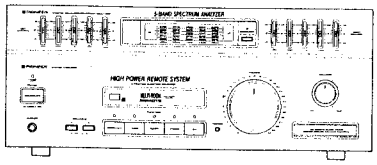
The future of sound and vision.

Service Manual



ORDER NO.
ARP2022

STEREO AMPLIFIER

SA-1520
SA-1520S

SA-1520 AND SA-1520S HAVE FOLLOWING VERSIONS.

Type	Applicable model		Power requirement	Destination
	SA-1520	SA-1520S		
KUC	O	O	AC120V only	U.S.A. and Canada
SD	O	O	AC110V, 120V-127V, 220V, 240V (switchable)	Kingdom of Saudi Arabia and general market

- This manual is applicable to the KUC type.
- As to the other types, refer to applicable service manuals.

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This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING
Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).
When servicing or handling circuit boards and other components which contain lead in in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

1. SAFETY INFORMATION

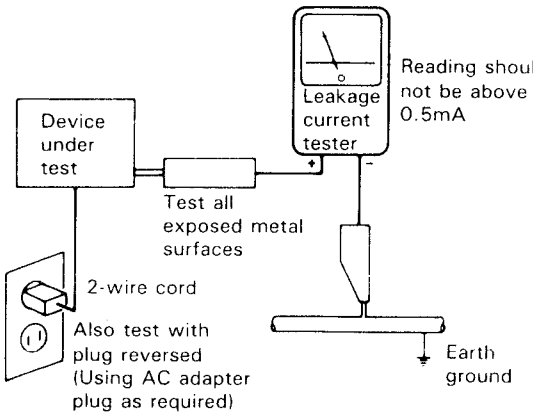
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.


Leakage current tester
Reading should not be above 0.5mA
Device under test
Test all exposed metal surfaces
2-wire cord
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

2. EXPLODED VIEW, PACKING AND PARTS LIST

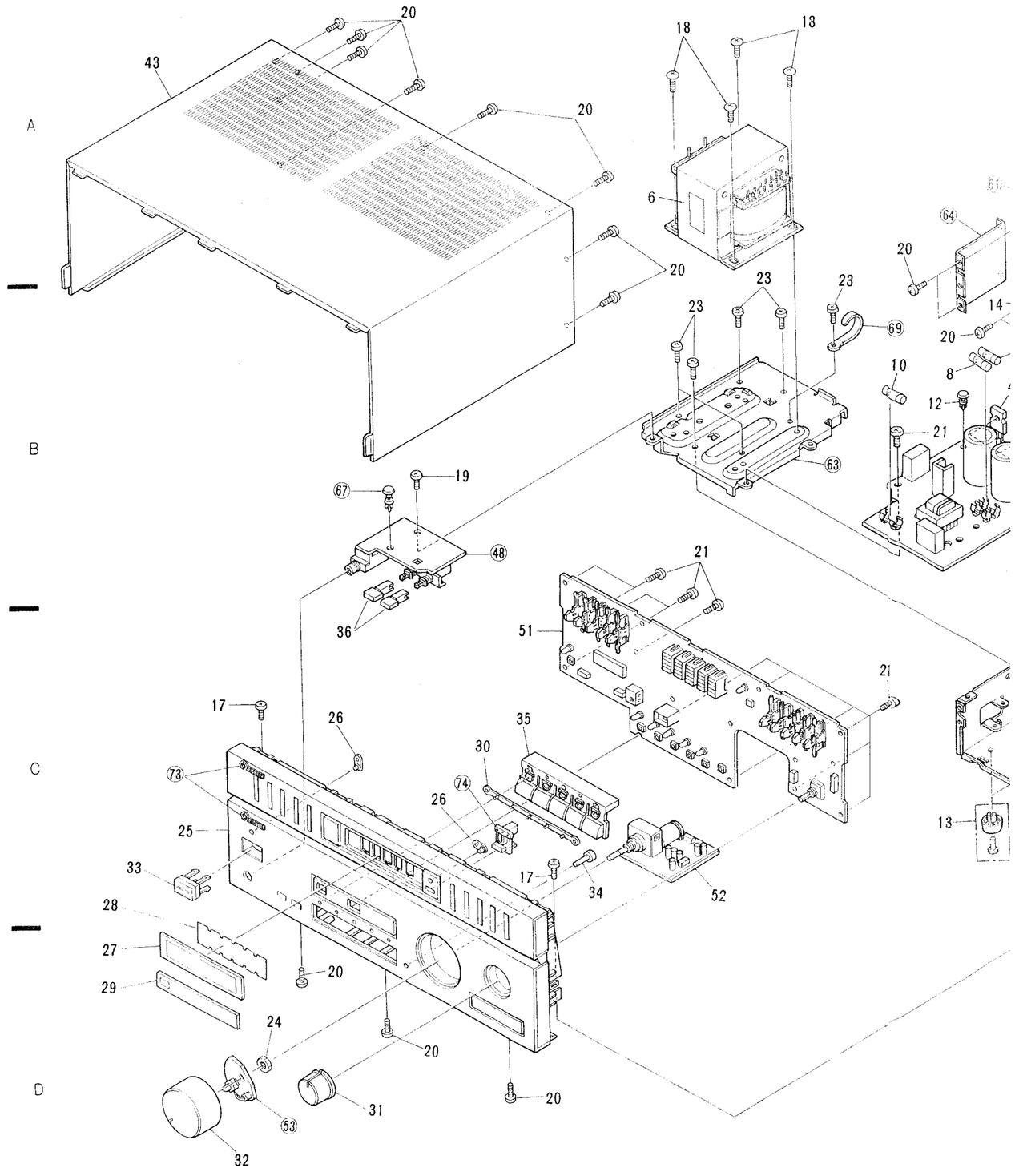
NOTES:

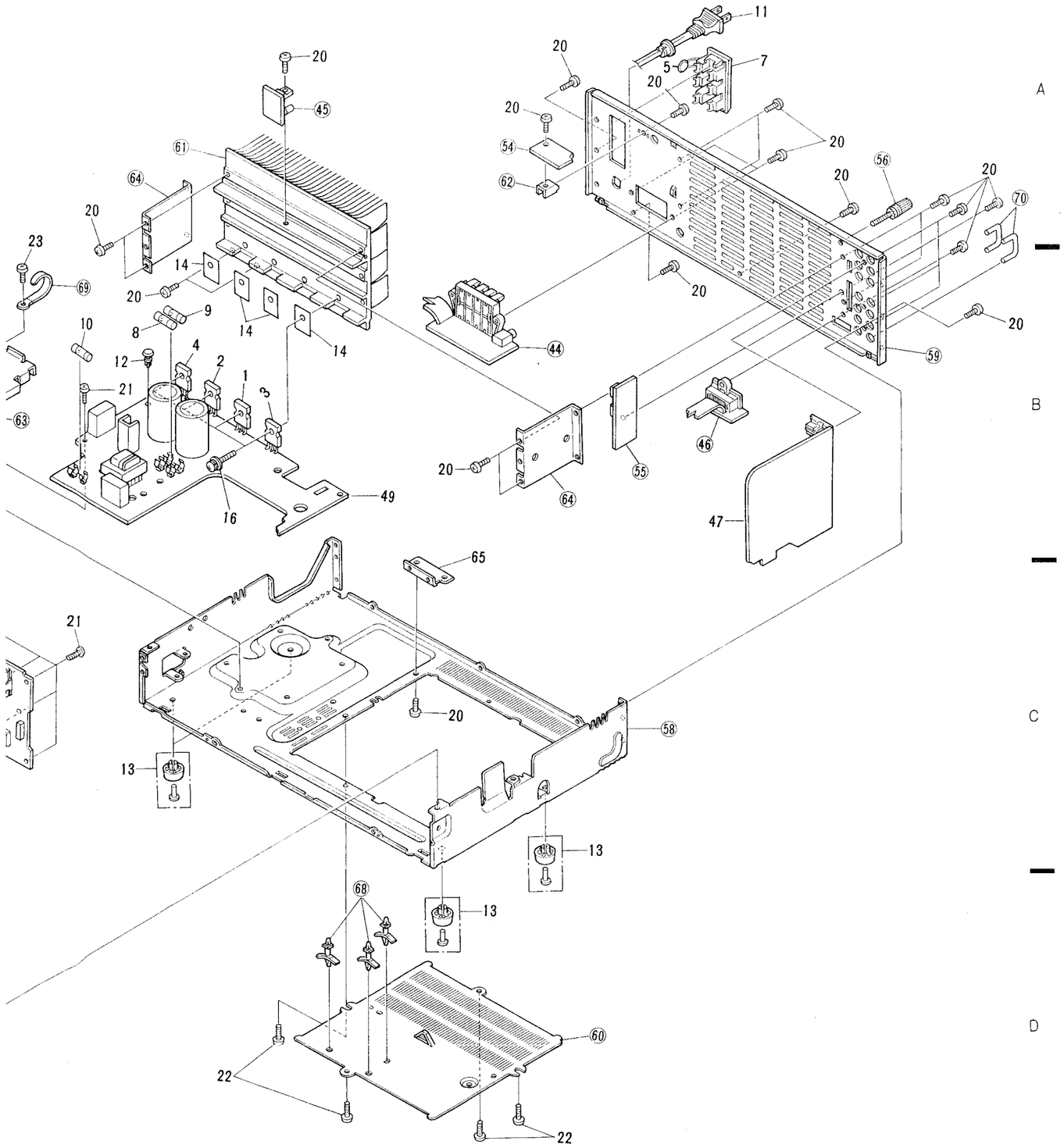
- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by " ⊙ " are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

Parts List

Mark	No.	Part No.	Description
⚠	1	2SA1302	Transistor (Q3)
⚠	2	2SA1302	Transistor (Q4)
⚠	3	2SC3281	Transistor (Q1)
⚠	4	2SC3281	Transistor (Q2)
⚠	5	ACG1003	Capacitor (CI.0,01/AC125V)
⚠	6	ATS1267	Power transformer
⚠	7	AKP-515	AC socket 3-P
⚠	8	AEK-122	Fuse (2A) (FU3)
⚠	9	AEK-122	Fuse (2A) (FU4)
⚠	10	AEK-309	Fuse (6. 3A) (FU1)
⚠	11	BDG1012	AC power cord
	12	AEC-510	Nylon rivet
	13	AEC-784	Leg assembly
	14	AEE1014	Sheet
	15	ABA-115	Screw
	16	ABA-258	Screw
	17	ABA1011	Screw
	18	ABA1053	Screw
	19	BBT30P080FMC	Screw
	20	BBT30P080FZK	Screw
	21	BBZ26P080FMC	Screw
	22	BBZ30P060FZK	Screw
	23	BBZ30P080FZK	Screw
	24	NK90FUC	Nut
	25	AMB1624	Front panel assy
	26	AAK1443	Lens
	27	AAK1918	Panel A
	28	AAK1919	Panel B
	29	AAK1920	Acrylic Panel
	30	AAK1921	Indicator lens
	31	AAB1098	Rotary knob (BALANCE)
	32	AAB1142	Rotary knob assy (VOLUME)
	33	AAD1535	Power knob (POWER)
	34	AAD1609	Button (muting)
	35	AAD1762	Knob (function)
	36	AAD1763	Push knob (SPEAKERS)
	37	ARB1244	Operating instructions
	38	ARD1012	Operating instructiions (for SA-1520 type, CU-SA007)
		ARD1013	Operating instructions (for SA-1520S type, CU-AV007)
	39	AXD1142	Remote control unit (CU-SA007)
	40	AHA1239	Pad
	41	AHD1849	Packing case (for SA-1520 type)
		AHD1850	Packing case (for SA-1520S type)

Mark	No.	Part No.	Description
	42	AHG1016	Packing seet
	43	ANE1186	Metal bonnet
	44		Output assy
	45		IC assy
	46		Connector assy
	47	AWZ2805	Input assy
	48		SP SW assy
	49	AWZ2947	AF assy
	50		. . . . .
	51	AWZ2807	Control assy
	52	AWZ2808	VOL assy
	53		LED assy
	54		Remote assy
	55		VSP SW assy
	56		Terminal screw
	57		Plug
	58		Chassis
	59		Rear panel
	60		Bottom plate
	61		Heat sink
	62		PCB holder
	63		Transformer frame
	64		Heat sink holder
	65		Heat sink holder
	66		Nylon binder
	67		Pin grommet
	68		PCB spacer
	69		Clamper
	70		Jumper plug
	71		. . . . .
	72		. . . . .
	73		Name plate
	74		Knob (plastic)
	75		. . . . .
	76		Warranty card
	77		Battery

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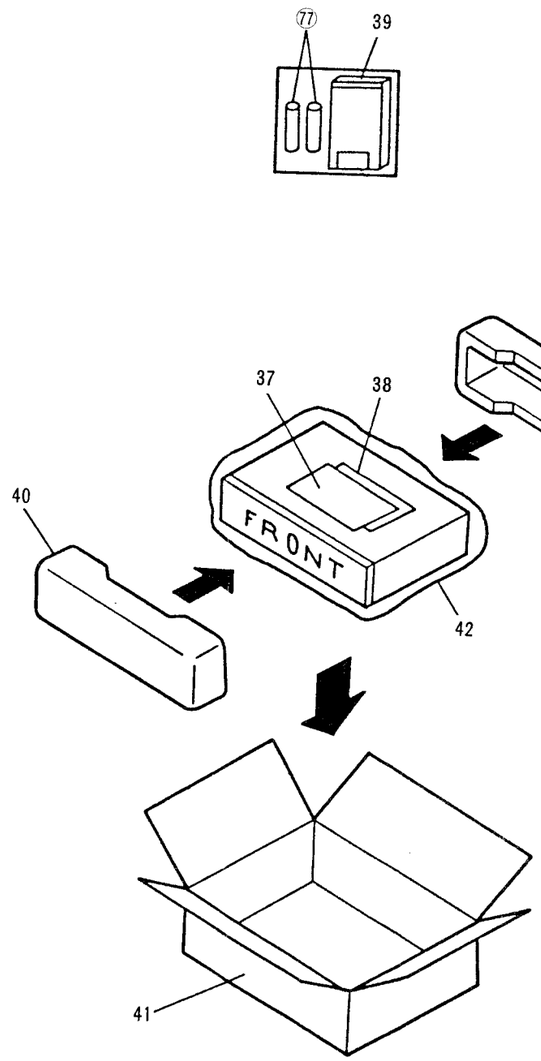
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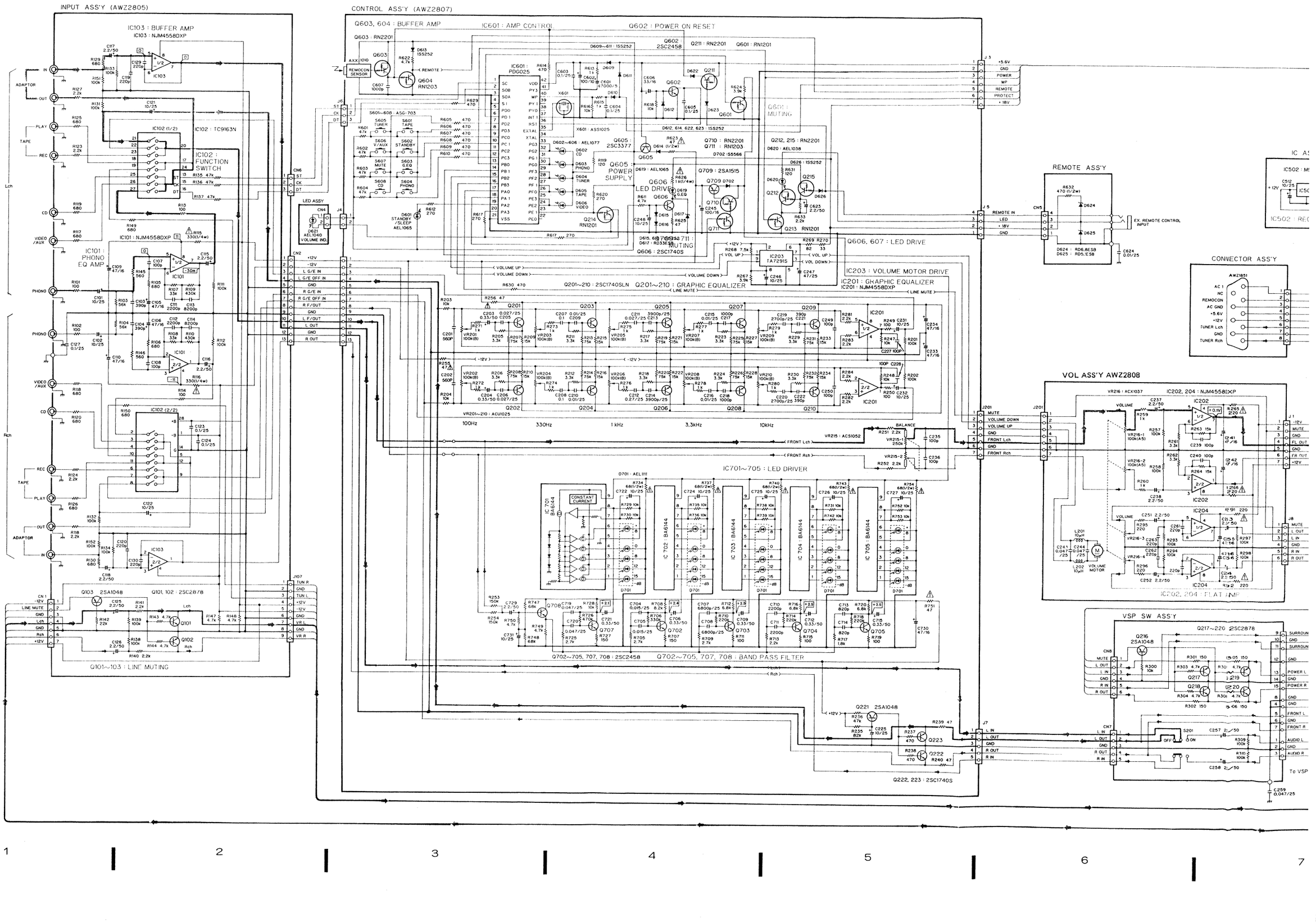
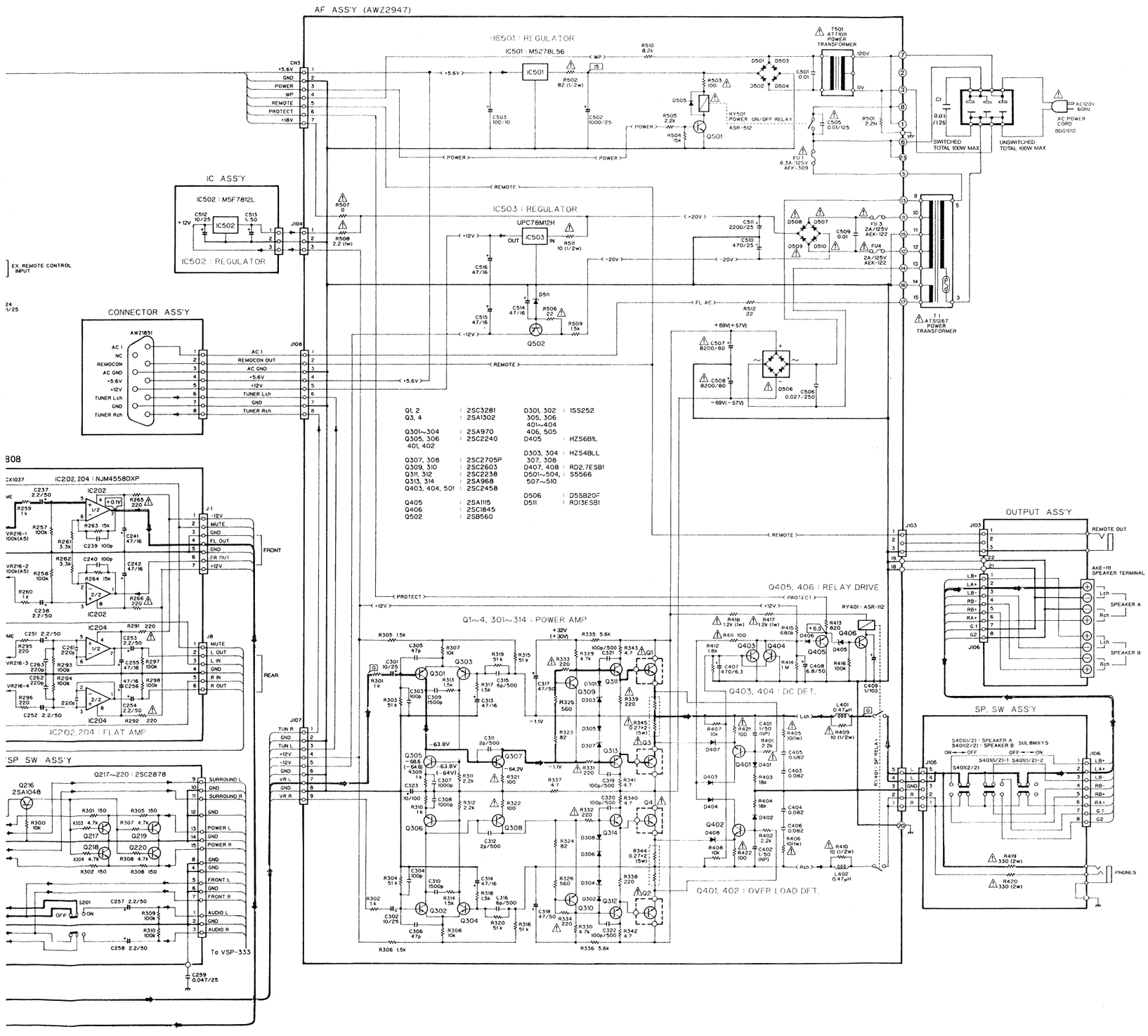
3. SCHEMATIC DIAGRAM





NOTE:

1. RESISTORS:
   Indicated in Ω, 1/8W & 1/4W, ±5% tolerance unless otherwise noted k; kΩ, M; MΩ, (F); ±1%, (G); ±2%, (K); ±10%, (M); ±20% tolerance

2. CAPACITORS:
   Indicated in capacity (μF)/voltage (V) unless otherwise noted p; pF. Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
   ▭; DC voltage (V) at no input signal
   Value in ( ) is DC voltage at rated power.
   mA; DC current at no input signal

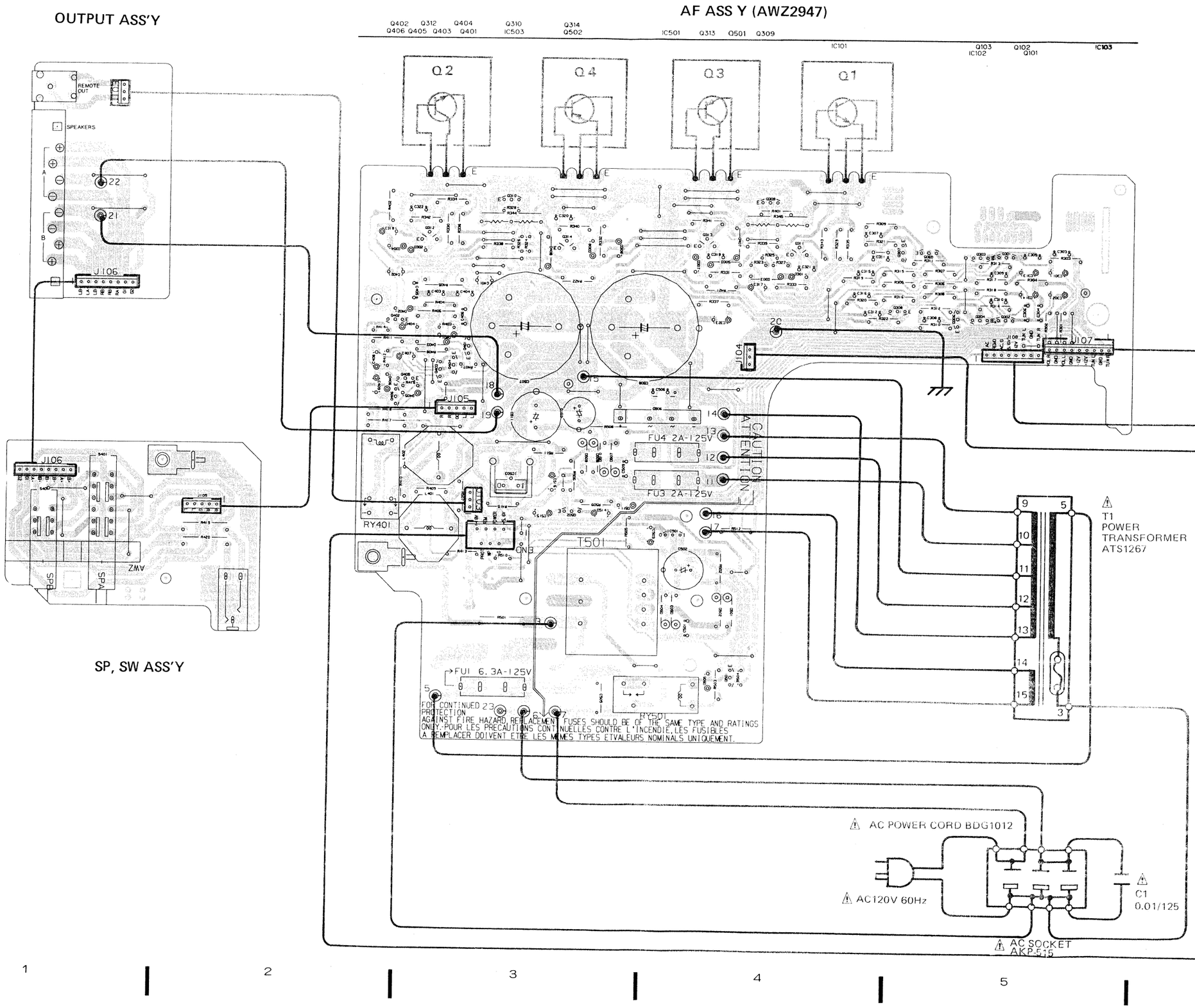
4. OTHERS:
   ➡; Signal route.
   ⊘; Adjusting point.

   The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
   * marked capacitors and resistors have parts numbers.
   The underlined indicates the switch position.

   This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

5. SWITCHES:
   S201:
   S601: TAPE
   S602: STANDBY ON
   S603: EQUALIZER ON/OFF
   S604: PHONO
   S605: TUNER
   S606: VIDEO/AUX
   S607: MUTING
   S608: CD
   S401: SPEAKERS A,B ON/OFF

4. P.C. BOARDS CONNECTION DIAGRAM



INPUT ASS'Y (AWZ2805)

IC ASS'Y

NECTOR ASS'Y

CONTROL ASS'Y (AWZ2807)

VOL ASS'Y (AWZ2808)

REMOTE ASS'Y

LED ASS'Y

VSP SW ASS'Y

NOTE

1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
Q504 (E)	E or E	Transistor
Q215	or	Radiator type transistor
D203	D203	Diode
R237	R237	Resistor
C513	+	Capacitor (Polarity)
C518		Capacitor (Non-polarity)

Others

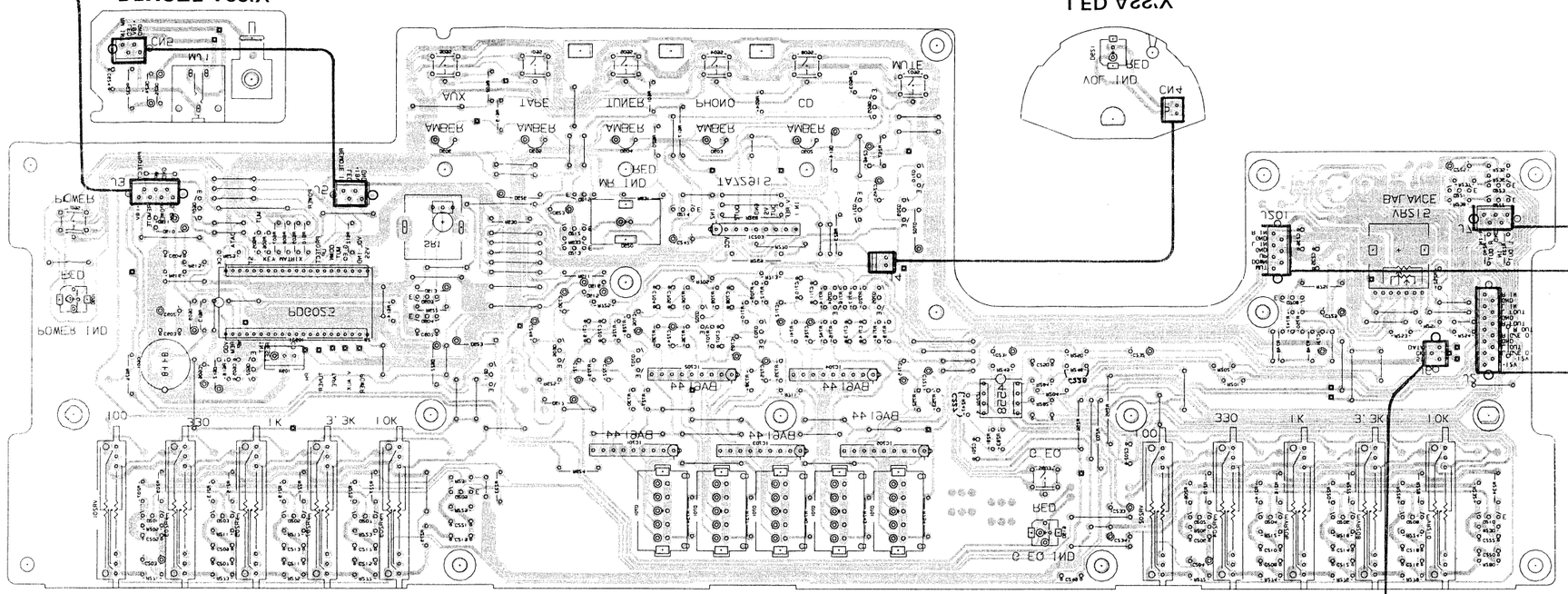
P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

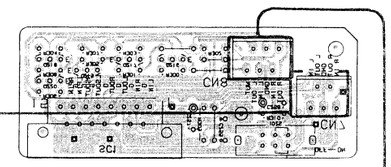
3. The capacitor terminal marked with ○ (double circles) shows negative terminal.
4. The diode terminal marked with ○ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

REMOTE ASS'Y

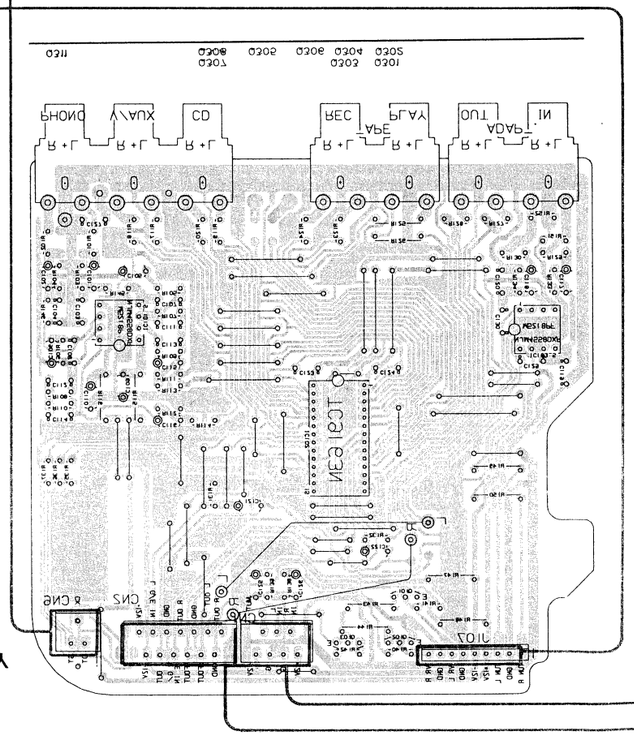
LED ASS'Y

VOL/SW ASS'Y

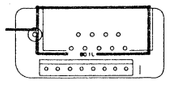




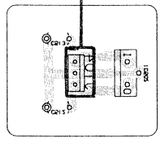
CONTROL ASS'Y (AWZ2807)



CONNECTOR ASS'Y

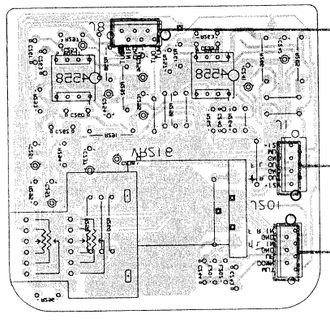


IC ASS'Y

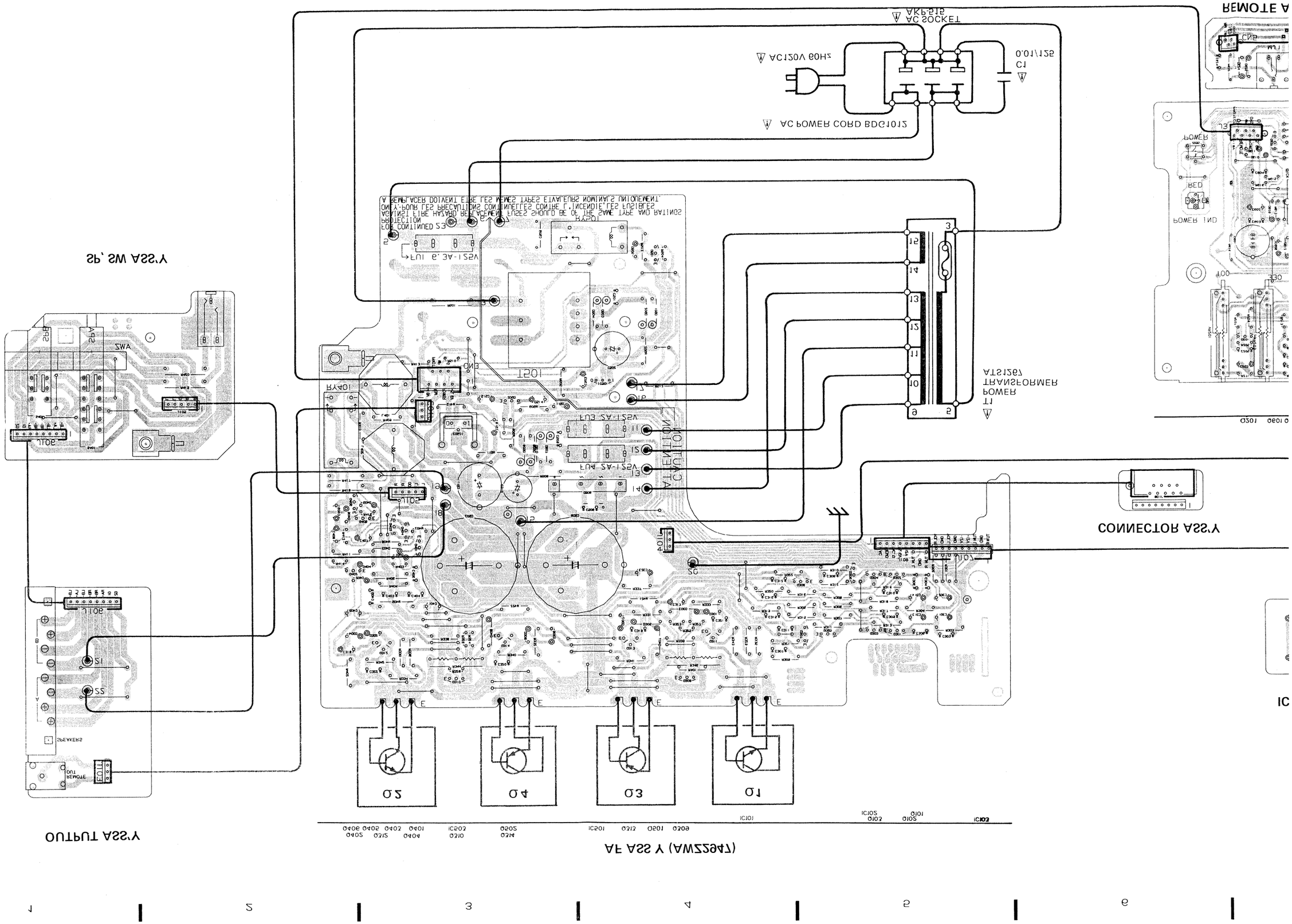


INPUT ASS'Y
(AWZ2805)

VOL ASS'Y
(AWZ2808)



This P.C. B. connection diagram is viewed from the foil side.


REMOTE ASS'Y
POWER IND
LED
POWER
TRANSFORMER
POWER
T1
AC SOCKET
AC POWER CORD BDG1015
AC250V 60Hz
0.01\1.5G
CY
CONNECTOR ASS'Y
IC
OUTPUT ASS'Y
SP, SW ASS'Y
AT ASS'Y (AWZ2847)
Q1
Q2
Q3
Q4
Q5

5. P.C.B's PARTS LIST

NOTES:

- *Parts without part number cannot be supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560Ω 56×10 1→561·····RD1/4PS□□□J
47kΩ 47×10 3→473·····RD1/4PS□□□J
0.5Ω 0R5·····RN2H□□□K
1Ω 010·····RS1P□□□K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ 563×10 1→5621·····RN1/4R□□□□F

Mark	NO	Description	Part NO
OUTPUT ASS'Y			
OTHERS			
		SPEAKER TERMINAL 8-P	AKE-111
		JACK	AKN-207
IC ASSY			
SEMICONDUCTORS			
		IC502	M5F7812L
CAPACITORS			
		C512 ELECTROLYTIC CAPACIT	CEHAQ100M25
		C513 ELECTR.CAPACITOR	CEHAQ010M50
CONNECTOR ASSY			
OTHERS			
		9P SOCKET	AKP1014
INPUT ASSY (AWZ2805)			
SEMICONDUCTORS			
		IC101	NJM4558DXP
		IC102 E-SW IC	TC9163N
		IC103	NJM4558DXP
		Q101,102 TRANSISTOR	2SC2878
		Q103 TRANSISTOR	2SA1048
CAPACITORS			
		C101,102 ELECTR.CAPACITOR	CEAS100M25
		C103,104 CERAMIC CAPACITOR	CKMYB391K50
		C105,106 ELECTR.CAPACITOR	CEAS470M16
		C107,108 CERAMIC CAPACITOR	CCMSL101J50
		C109,110 ELECTR.CAPACITOR	CEAS470M16
		C111,112 CERAMIC CAPACITOR	CKCYB222K50
		C113,114 CERAMIC CAPACITOR	CKCYB822K50
		C115-118 ELECTR.CAPACITOR	CEAS2R2M50
		C119,120 CERAMIC CAPACITOR	CKMYB221K50
		C121,122 ELECTR.CAPACITOR	CEAS100M25
		C123,124 CERAMIC CAPACITOR	CKCYX104M25
		C125,126 ELECTR.CAPACITOR	CEAS2R2M50
		C127 CERAMIC CAPACITOR	CKCYX104M25
		C129,130 CERAMIC CAPACITOR	CKMYB221K50
RESISTORS			
		R101-114 CARBONFILM RESISTOR	RD1/8PM□□□J
⚠		R115,116 CARBON FILM RESISTOR	RD1/4PMF331J
		R117-120 CARBONFILM RESISTOR	RD1/8PM□□□J
		R123-152 CARBONFILM RESISTOR	RD1/8PM□□□J
OTHERS			
		PHONO JACK 6-P	AKB1007
		PHONO JACK 6-P	AKB1024
		CN1	KPE7
		CN2	KPE13
		CN6	KPE3
SP SW ASSY			
SWITCHES			
		S401 PUSH SWITCH	SUL8LXYS
RESISTORS			
⚠		R419,420 METAL OXIDE RESISTOR	RS2LMF331J
OTHERS			
		JACK (PHONES)	AKN1002
AF ASSY (AWZ2947)			
SEMICONDUCTORS			
		IC501	M5278L56(A)
		IC503	UPC78M12H
		Q301-304 TRANSISTOR	2SA970
		Q305,306 TRANSISTOR	2SC2240
		Q307,308 TRANSISTOR	2SC2705P
		Q309,310 TRANSISTOR	2SC2603
		Q311,312 TRANSISTOR	2SC2238

Mark	NO	Description	Part NO
	Q313,314	TRANSISTOR	2SA968
	Q401,402	TRANSISTOR	2SC2240
	Q403,404	TRANSISTOR	2SC2458
	Q405	TRANSISTOR	2SA1115
	Q406	TRANSISTOR	2SC1845
	Q501	TRANSISTOR	2SC2458
	Q502	TRANSISTOR	2SB560
	D301,302	DIODE	1SS252
	D303,304	ZENER DIODE	HZS4BLL
	D305,306	DIODE	1SS252
	D307,308	ZENER DIODE	HZS4BLL
	D401-404	DIODE	1SS252
	D405	ZENER DIODE	HZS6B1L
	D406	DIODE	1SS252
	D407,408	ZENER DIODE	RD2.7ESB1
	D501-504	DIODE	S5566
	D505	DIODE	1SS252
	D506	DIODE	D5SB20F
	D507-510	DIODE	S5566
	D511	ZENER DIODE	RD13ESB1
	COIL & FILTER & TRANSFORMERS		
	L401,402	COIL	ATH1004
⚠	T501	POWER TRANSFORMER	ATT1011
	CAPACITORS		
	C301,302	ELECTR.CAPACITOR	CEAS100M25
	C303,304	CERAMIC CAPACITOR	CCMSL101J50
	C305,306	CERAMIC CAPACITOR	CCMSL470J50
	C307,308	CERAMIC CAPACITOR	CKMYB102K50
	C309,310	CERAMIC CAPACITOR	CKMYB152K50
	C311,312	CERAMIC CAPACITOR	CCCSL020C500
	C313,314	ELECTR.CAPACITOR	CEAS470M16
	C315,316	CERAMIC CAPACITOR	CCCSL060D500
	C317,318	ELECTR.CAPACITOR	CEAS470M50
	C319-322	CERAMIC CAPACITOR	CCCSL101K500
	C323	ELECTROLYTIC CAPACIT	CEAS100M100
	C401,402	ELECTR.CAPACITOR	CEANP010M50
	C403-406	AUDIO FILM CAPACITOR	CFTXA823J50
	C407	ELECTROLYTIC CAPACIT	CEAS471M6
	C408	ELECTROLYTIC CAPACIT	CEAS6R8M50
	C409	ELECTR.CAPACITOR	CEAS010M100
	C501	CERAMIC CAPACITOR	CKCYF103Z50
	C502	ELECTR.CAPACITOR	CEAS102M25
	C503	ELECTR.CAPACITOR	CEAS101M10
⚠	C505	CKA (0.01/AC400V)	ACG1003
	C506	MYLOR FILM CAPACITOR	CQMA273K250
	C507,508	ELECTROLYTIC CAPACIT	ACH1039
	C509	CERAMIC CAPACITOR	CKCYF103Z50
	C510	ELECTROLYTIC CAPACIT	CEAS471M25
	C511	ELECTR.CAPACITOR	CEAS222M25
	C514-516	ELECTR.CAPACITOR	CEAS470M16
	RESISTORS		
	R301-320	CARBON FILM RESISTOR	RD1/4PM□□□J
⚠	R321,322	FUSLIBLE RESISTOR	RFA1/4PS101J
	R323-328	CARBONFILM RESISTOR	RD1/8PM□□□J
	R329,330	CARBON FILM RESISTOR	RD1/2PM472J
⚠	R331-334	CARBON FILM RESISTOR	RD1/4PMF221J

Mark	NO	Description	Part NO
	R335,336	CARBONFILM RESISTOR	RD1/2PM562J
⚠	R337	CARBON FILM RESISTOR	RD1/4PMF4R7J
⚠	R338,339	FUSLIBLE RESISTOR	RFA1/4PS221J
⚠	R340-343	FUSLIBLE RESISTOR	RFA1/4PS4R7J
⚠	R344,345	RESISTOR (0.27, 5W)	ACN1018
⚠	R401,402	CARBON FILM RESISTOR	RD1/4PMF222J
	R403,404	CARBONFILM RESISTOR	RD1/8PM183J
⚠	R405,406	METAL OXIDE RESISTOR	RS1PMF100J
	R407,408	CARBONFILM RESISTOR	RD1/8PM103J
⚠	R409,410	CARBON FILM RESISTOR	RD1/2PMF100J
⚠	R411	FUSLIBLE RESISTOR	RFA1/4PS101J
	R412-416	CARBONFILM RESISTOR	RD1/8PM□□□J
⚠	R417,418	METAL OXIDE RESISTOR	RS1LMF122J
⚠	R421,422	CARBON FILM RESISTOR	RD1/4PMF101J
⚠	R501	RESISTOR(2.2M, 1/2W)	ACN-208
⚠	R502	CARBON FILM RESISTOR	RD1/2PMFL820J
⚠	R503	CARBON FILM RESISTOR	RD1/4PMF101J
	R504,505	CARBONFILM RESISTOR	RD1/8PM□□□J
⚠	R506,507	FUSLIBLE RESISTOR	RFA1/4PS□□□J
⚠	R508	METAL OXIDE RESISTOR	RS1PMF2R2J
	R509	CARBON FILM RESISTER	RD1/4PM152J
	R510	CARBONFILM RESISTOR	RD1/8PM822J
⚠	R511	CARBON FILM RESISTOR	RD1/2PMF100J
	R512	CARBON FILM RESISTOR	RD1/4PM220J
	OTHERS		
		SCREW	PBZ30P060FMC
	CN3		KPE7
	RY401	RELAY	ASR-112
⚠	RY501	RELAY	ASR-512

CONTROL ASSY (AWZ2807)

	SEMICONDUCTORS		
	IC201		NJM4558DXP
	IC203		TA7291S
	IC601		PDG025-A
	IC701-705		BA6144
	Q201-210	TRANSISTOR	2SC1740SLN
	Q211,212	TRANSISTOR	RN2201
	Q213,214	TRANSISTOR	RN1201
	Q215	TRANSISTOR	RN2201
	Q221	TRANSISTOR	2SA1048
	Q222,223	TRANSISTOR	2SC1740S
	Q601	TRANSISTOR	RN1201
	Q602	TRANSISTOR	2SC2458
	Q603	TRANSISTOR	RN2201
	Q604	TRANSISTOR	RN1203
	Q605	TRANSISTOR	2SC3377
	Q606	TRANSISTOR	2SC1740S
	Q702-705	TRANSISTOR	2SC2458
	Q707,708	TRANSISTOR	2SC2458
	Q709	TRANSISTOR	2SA1515
	Q710	TRANSISTOR	RN2201
	Q711	TRANSISTOR	RN1203
	D601	LED(RED)	AEL1065
	D602-606	LED	AEL1077
	D609-616	DIODE	1SS252
	D617	ZENER DIODE	RD33ESB
	D619	LED(RED)	AEL1065

Mark	NO	Description	Part NO
	D620	LED(RED)	AEL1038
	D622,623	DIODE	1SS252
	D626	DIODE	1SS252
	D701	LED	AEL1111
	D702	DIODE	S5566
SWITCHES			
	S601-608	SWITCH	ASG-703
CAPACITORS			
	C201,202	CERAMIC CAPACITOR	CKMYB561K50
	C203,204	ELECTROLYTIC CAPACIT	CEJAR33M50
	C205,206	CERAMIC CAPACITOR	CKDYX273M25
	C207,208	AUDIO FILM CAPACITOR	CFTXA104J50
	C209,210	CERAMIC CAPACITOR	CKDYX103M25
	C211,212	CERAMIC CAPACITOR	CKDYX273M25
	C213,214	CERAMIC CAPACITOR	CGMYX392M25
	C215,216	CERAMIC CAPACITOR	CKDYX103M25
	C217,218	CERAMIC CAPACITOR	CKMYB102K50
	C219,220	CERAMIC CAPACITOR	CGMYB272M25
	C221,222	CERAMIC CAPACITOR	CKMYB391K50
	C225	ELECTR.CAPACITOR	CEAS100M25
	C227,228	CERAMIC CAPACITOR	CCMSL101J50
	C231,232	ELECTR.CAPACITOR	CEAS100M25
	C233,234	ELECTR.CAPACITOR	CEAS470M16
	C235,236	CERAMIC CAPACITOR	CCMSL101J50
	C245	ELECTR.CAPACITOR	CEAS101M16
	C246	ELECTR.CAPACITOR	CEAS100M25
	C247	ELECTR.CAPACITOR	CEAS470M25
	C248	ELECTR.CAPACITOR	CEAS100M25
	C249,250	CERAMIC CAPACITOR	CCMSL101J50
	C601	CEA (47000/5.5V)	ACH1037
	C602	ELECTR.CAPACITOR	CEAS101M10
	C603-605	CERAMIC CAPACITOR	CKCYX104M25
	C606	ELECTR.CAPACITOR	CEAS330M16
	C607	CERAMIC CAPACITOR	CKMYB102K50
	C623	ELECTR.CAPACITOR	CEJA2R2M50
	C704,705	CERAMIC CAPACITOR	CKCYX153M25
	C706	ELECTR.CAPACITOR	CEASR33M50
	C707,708	CERAMIC CAPACITOR	CGMYX682M25
	C709	ELECTR.CAPACITOR	CEASR33M50
	C710,711	CERAMIC CAPACITOR	CGMYB222M50
	C712	ELECTR.CAPACITOR	CEASR33M50
	C713,714	CERAMIC CAPACITOR	CKMYB821K50
	C715	ELECTR.CAPACITOR	CEASR33M50
	C719,720	CERAMIC CAPACITOR	CKCYX473M25
	C721	ELECTR.CAPACITOR	CEASR33M50
	C722	ELECTR.CAPACITOR	CEAS100M25
	C724-727	ELECTR.CAPACITOR	CEAS100M25
	C729	ELECTR.CAPACITOR	CEAS2R2M50
	C730	ELECTR.CAPACITOR	CEAS470M16
	C731	ELECTR.CAPACITOR	CEAS100M25
RESISTORS			
	VR201-210	VR	ACU1025
	VR215		ACS1052
	R201-240	CARBONFILM RESISTOR	RD1/8PM□□□J
	R247-254	CARBONFILM RESISTOR	RD1/8PM□□□J
⚠	R255,256	FUSLIBLE RESISTOR	RFA1/4PS470J
	R267,268	CARBONFILM RESISTOR	RD1/8PM□□□J
⚠	R269	METAL OXIDE RESISTOR	RS1LMF820J

Mark	NO	Description	Part NO
⚠	R270	CARBON FILM RESISTOR	RD1/2PMF330J
	R271-284	CARBONFILM RESISTOR	RD1/8PM□□□J
	R601-620	CARBONFILM RESISTOR	RD1/8PM□□□J
	R622	CARBONFILM RESISTOR	RD1/8PM472J
⚠	R623	CARBON FILM RESISTOR	RD1/2PMF470J
	R624,625	CARBONFILM RESISTOR	RD1/8PM□□□J
⚠	R626	CARBON FILM RESISTOR	RD1/4PMF102J
	R629-631	CARBONFILM RESISTOR	RD1/8PM□□□J
	R633	CARBONFILM RESISTOR	RD1/8PM222J
	R705-720	CARBONFILM RESISTOR	RD1/8PM□□□J
	R725-730	CARBONFILM RESISTOR	RD1/8PM□□□J
⚠	R734	CARBON FILM RESISTOR	RD1/2PMF680J
	R735,736	CARBONFILM RESISTOR	RD1/8PM103J
⚠	R737	CARBON FILM RESISTOR	RD1/2PMF680J
	R738,739	CARBONFILM RESISTOR	RD1/8PM103J
⚠	R740	CARBON FILM RESISTOR	RD1/2PMF680J
	R741,742	CARBONFILM RESISTOR	RD1/8PM103J
⚠	R743	CARBON FILM RESISTOR	RD1/2PMF680J
	R747-750	CARBONFILM RESISTOR	RD1/8PM□□□J
⚠	R751	FUSLIBLE RESISTOR	RFA1/4PS470J
	R752,753	CARBONFILM RESISTOR	RD1/8PM103J
⚠	R754	CARBON FILM RESISTOR	RD1/2PMF680J
OTHERS			
		2P HOUSING WIRE MATERIALS	ADX1189
		REMOTE RECEIVER UNIT	AXX1010
	X601	CERAMIC RESONATOR	ASS1025

VOL ASSY (AWZ2808)

SEMICONDUCTORS			
	IC202		NJM4558DXP
	IC204		NJM4558DXP
COIL & FILTER & TRANSFORMERS			
	L201,202	AXIAL INDUCTOR	LAU100K
CAPACITORS			
	C237,238	ELECTR.CAPACITOR	CEJA2R2M50
	C239,240	CERAMIC CAPACITOR	CCMSL101J50
	C241,242	ELECTR.CAPACITOR	CEAS470M16
	C243,244	CERAMIC CAPACITOR	CKCYX473M25
	C251,252	ELECTR.CAPACITOR	CEJA2R2M50
	C253,254	ELECTR.CAPACITOR	CEAS2R2M50
	C255,256	ELECTR.CAPACITOR	CEAS470M16
	C260-263	CERAMIC CAPACITOR	CKMYB221K50
RESISTORS			
	VR216	VR	ACX1037
	R257-264	CARBONFILM RESISTOR	RD1/8PM□□□J
⚠	R265,266	CARBON FILM RESISTOR	RD1/4PMF221J
⚠	R291,292	CARBON FILM RESISTOR	RD1/4PMF221J
	R293-298	CARBONFILM RESISTOR	RD1/8PM□□□J

LED ASSY

SEMICONDUCTORS			
	D621	LED(RED)	AEL1040

Mark NO	Description	Part NO

REMOTE ASSY

SEMICONDUCTORS

	D624 ZENER DIODE	RD6.8ESB
	D625 ZENER DIODE	RD5.1ESB

CAPACITORS

	C624 CERAMIC CAPACITOR	CKDYX103M25

RESISTORS

	R632 CARBONFILM RESISTOR	RD1/2PM471J

OTHERS

	MINI JACK	AKN1020

VSP SW ASSY

SEMICONDUCTORS

	Q216 TRANSISTOR	2SA1048
	Q217-220 TRANSISTOR	2SC2878

SWITCHES

	S201 SLIDE SWITCH	ASH1009

CAPACITORS

	C257,258 ELECTR.CAPACITOR	CEAS2R2M50
	C259 CERAMIC CAPACITOR	CKCYX473M25

RESISTORS

	R300-310 CARBONFILM RESISTOR	RD1/8PM□□□J

OTHERS

	CN7	KPE5
	CN8	KPE6

6. REMOTE CONTROL UNIT (AXD1143) (FOR SA-1520S)

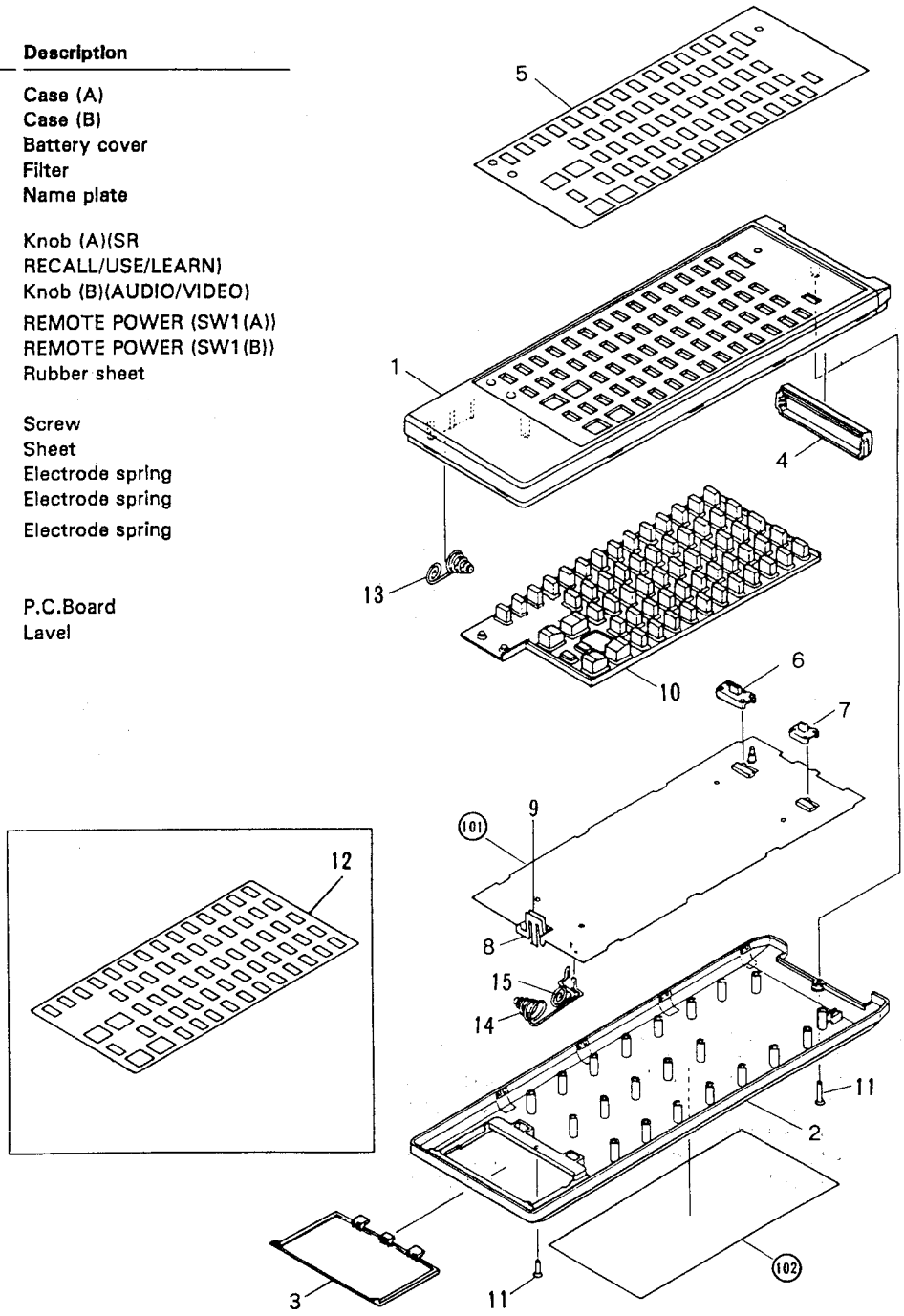
6.1 EXPLODED VIEWS AND PARTS LIST

NOTES:

- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

Parts List of Exterior

Mark	No.	Parts No.	Description
	1	AZA1968	Case (A)
	2	AZA1969	Case (B)
	3	AZA1970	Battery cover
	4	AZA1139	Filter
	5	AZA1242	Name plate
	6	AZA1142	Knob (A)(SR RECALL/USE/LEARN)
	7	AZA1143	Knob (B)(AUDIO/VIDEO)
	8	AZA1144	REMOTE POWER (SW1(A))
	9	AZA1177	REMOTE POWER (SW1(B))
	10	AZA1243	Rubber sheet
	11	AZA1146	Screw
	12	AZA1152	Sheet
	13	AZB1268	Electrode spring
	14	AZB1269	Electrode spring
	15	AZB1270	Electrode spring
	101		P.C.Board
	102		Lavel



6.2 ELECTRICAL PARTS LIST

NOTES:

- *Parts without part number cannot be supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	*56 × 10¹*	*561*	*RD1/4PS 5 6 1 J*
47kΩ	*47 × 10³*	*473*	*RD1/4PS 4 7 3 J*
0.5Ω	*0R5*		*RN2H 0 R 5 K*
1Ω	*010*		*RS1P 0 1 0 K*

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	*562 × 10¹*	*5621*	*RN1/4SR 5 6 2 1 F*

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC1	PDG061−A
	IC2	AZC1232
	IC3	AZC1231
	Q1	AZC1229
	Q2	AZC1230
	D2	AZC1224
	D4	AZC1225
	D5	AZC1226
	D6−D9,D11	AZC1228
	D10	AZC1227

SWITCHES

Mark	Symbol & Description	Part No.
	S01,S06 Slide switch (AUDIO/VIDEO,SUR/AMP)	AZS1073
	S03,S04 Slide switch (SR RECALL/USE/LEARN)	AZS1074
	SW1 (A) REMOTE POWER	AZA1144
	SW1 (B) REMOTE POWER	AZS1177

CAPACITORS

Mark	Symbol & Description	Part No.
	C1,C2 (100μF/6V)	AZC1253
	C3 (10μF/16V)	AZC1254
	C4,C5 (100pF)	AZC1222
	C6,C8−C10 (0.01μF)	AZC1220
	C7 (1000pF)	AZC1221

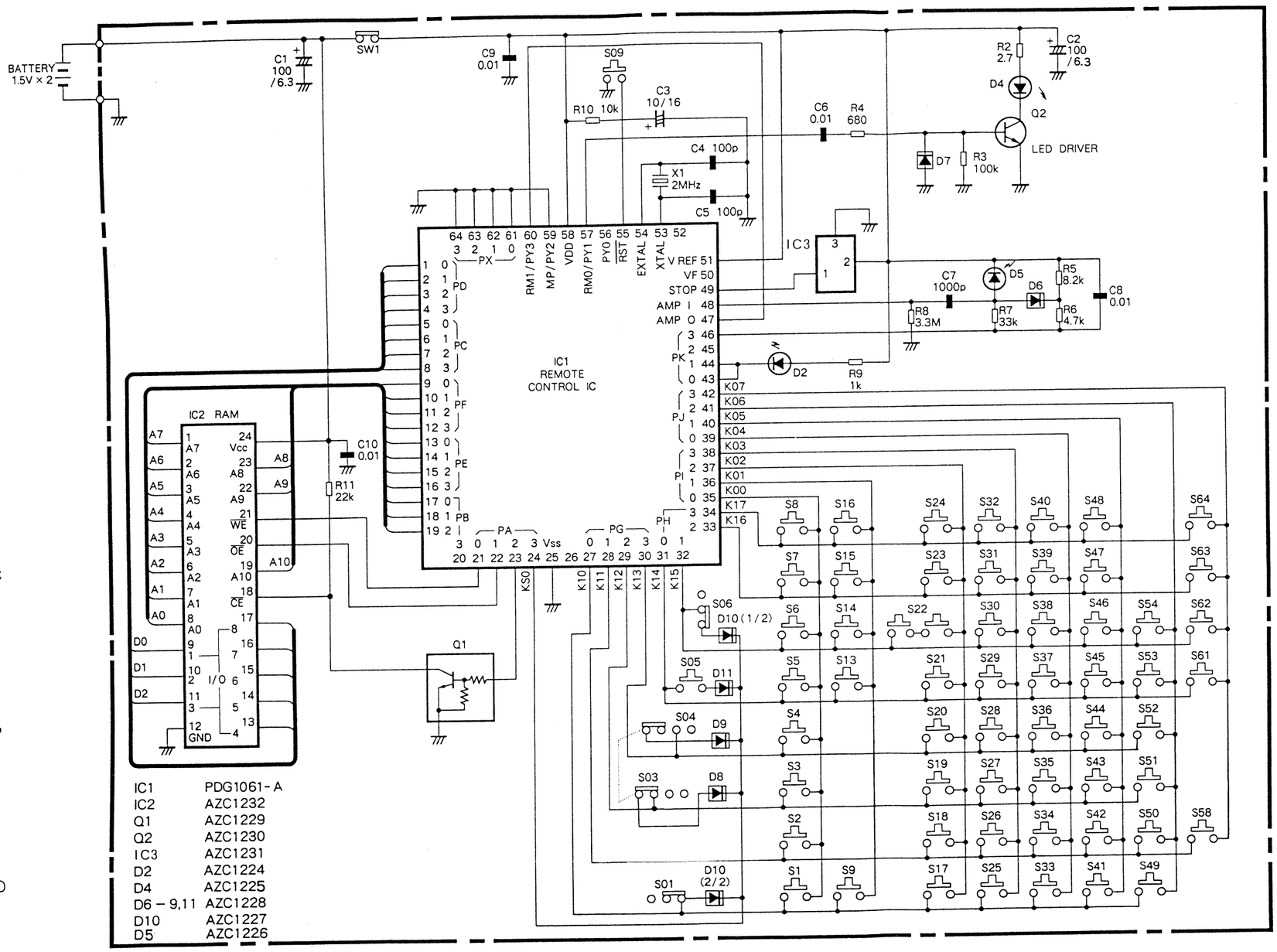
RESISTORS

Mark	Symbol & Description	Part No.
	R2 (2.7Ω)	AZC1219
	R3 (100kΩ)	AZC1210
	R4 (680Ω)	AZC1217
	R5 (8.2kΩ)	AZC1214
	R6 (4.7kΩ)	AZC1215
	R7 (33kΩ)	AZC1211
	R8 (3.3MΩ)	AZC1218
	R9 (1kΩ)	AZC1216
	R10 (10kΩ)	AZC1213
	R11 (22kΩ)	AZC1212

OTHER

Mark	Symbol & Description	Part No.
	X1 Ceramic resonator (2.0MHz)	AZC1223

6.3 SCHEMATIC DIAGRAM



IC1	PDG1061-A
IC2	AZC1232
Q1	AZC1229
Q2	AZC1230
IC3	AZC1231
D2	AZC1224
D4	AZC1225
D6 – 9,11	AZC1228
D10	AZC1227
D5	AZC1226

1. RESISTORS :
Indicated in Ω, 1/4W, 1/6W and 1/8W, ± 5% tolerance unless otherwise noted k ; kΩ, M ; MΩ, (F) ; ± 1%, (G) ; ± 2%, (K) ; ± 10%, (M) ; ± 20% tolerance.

2. CAPACITORS :
Indicated in capacity (μF) /voltage (V) unless otherwise noted p ; pF. Indication without voltage is 50V except electrolytic capacitor.

3. OTHERS :
➡ ; Signal route.
⊘ ; Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

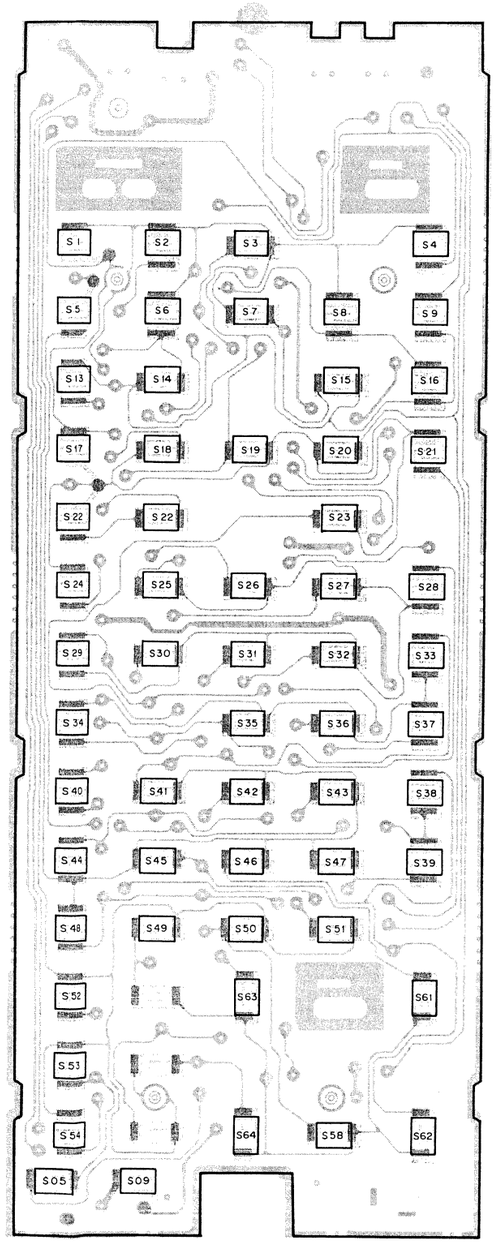
4. SWITCHES : (The underlined indicates the switch position)
SW1 : REMOTE POWER
S01 : AUDIO/VIDEO

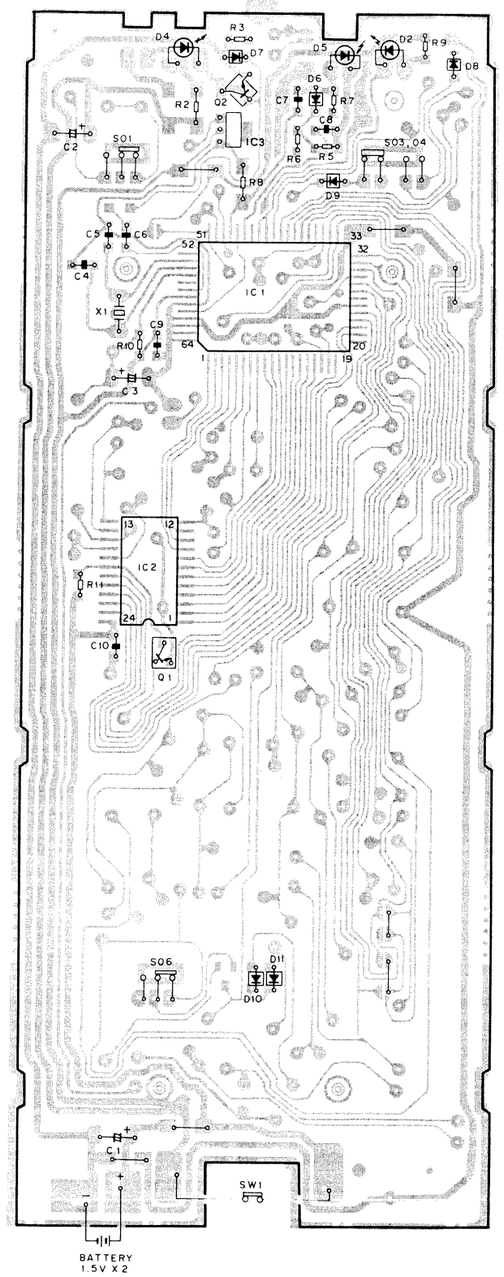
	SR RECALL	USE	LEARN
S03	ON	OFF	OFF
S04	OFF	OFF	ON

S05 : M – CLR
S06 : SUR/AMP
S09 : RESET

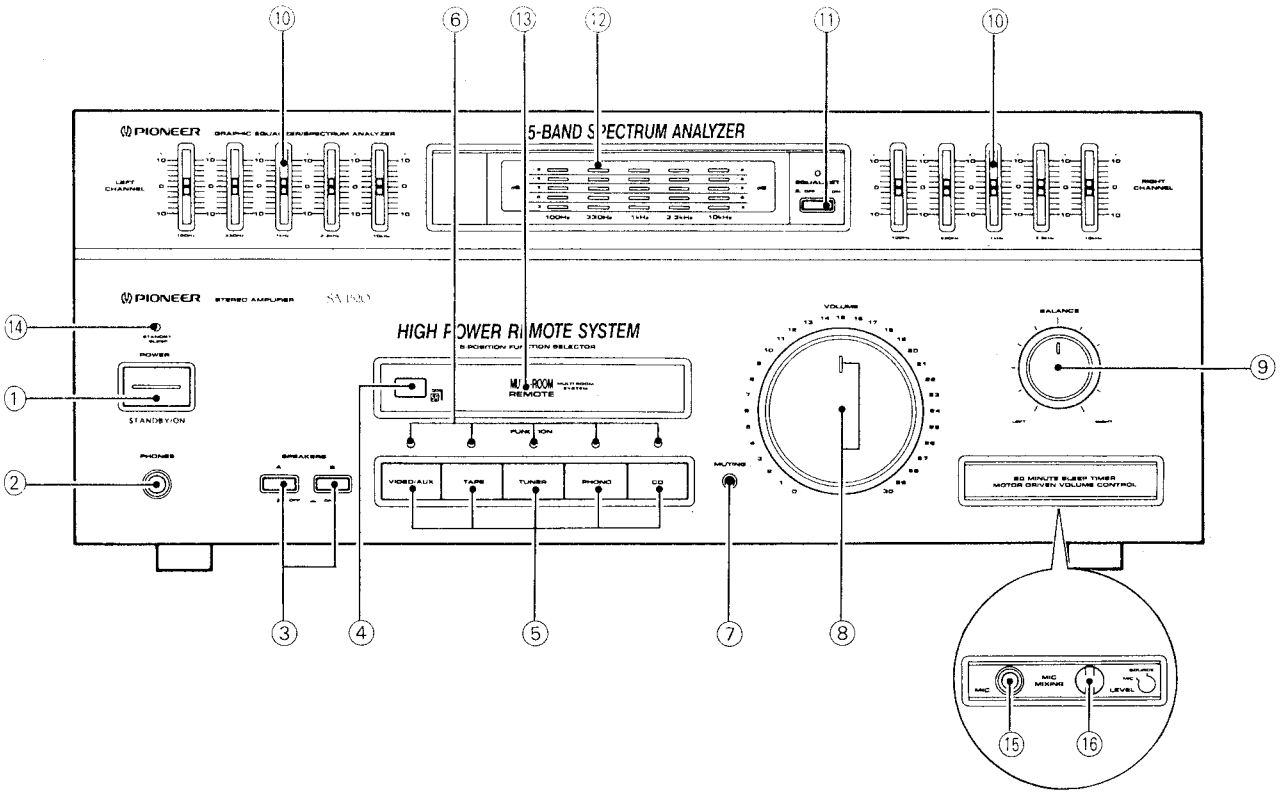
S1 : AMP
S2 : TV POWER
S3 : VCR
S4 : SLEEP AMP/TV
S5 : V/AUX
S6 : TAPE
S7 : TUNER/VCR1
S8 : PHONO/VCR2
S9 : CD/VDP
S13 : PGM
S14 : DISC/DISPLAY
S15 : ⏮/CHP/FR – TM
S16 : ⏭ SEARC
S17 : ⏪ CD/VDP
S18 : ⏸
S19 : ⏹
S20 : ▶
S21 : ⏩
S22 : ● (REC)
S23 : ⏸
S24 : ⏪
S25 : ◀/TV/VCR TAPE (DECK II) /VCR
S26 : ⏹
S27 : ▶
S28 : ⏩
S29 : ⏪/TV
S30 : ◀/VDP
S31 : ⏹/VCR TAPE (DECK I) /VCR
S32 : ▶/CH –
S33 : ⏩/CH +
S34 : CD + 10
S35 : 1 – 12/13 – 24/TV ANT
S36 : BAND/CICLE
S37 : TV DISPLAY
S38 : CHANNEL +
S39 : CHANNEL –
S40 : 1/13
S41 : 2/14
S42 : 3/15
S43 : 4/16
S44 : 5/17
S45 : 6/18
S46 : 7/19
S47 : 8/20
S48 : 9/21
S49 : 0/10/22
S50 : 11/23/MEMORY
S51 : 12/24/CLEAR
S52 : TV FUNCTION
S53 : TV VOL +
S54 : TV VOL –
S55 : AUDIO SOURCE
S56 : VIDEO FUNCTION
S57 : SURROUND MODE
S58 : MUTING
S61 : MASTER VOLUME +
S62 : MASTER VOLUME –
S63 : SUR MODE
S64 : DELAY

6.4 P.C. BOARD PATTERN





7. PANEL FACILITIES



① POWER (STANDBY/ON) switch

- The accessory remote control unit can also be used to operate STANDBY/ON function of this switch.

ON ..... When set to the ON position, power is supplied and the unit becomes operational.

STANDBY .. When set to STANDBY position, the main power flow is cut and the unit is no longer fully operational. A minute flow of power feeds the unit to maintain operation readiness.

- When not using the unit for a long period, disconnect the wall socket.
- When the power is turned on, the protection circuitry operates and during that time the volume indicator flashes.

② PHONES jack

When using headphones, insert their plug into this jack.

③ SPEAKERS A, B (ON ■/OFF □) switches

[**ON**] — Depressed position: Sound is heard from the speaker system.
[**OFF**] — Released position: No sound is heard from the speaker system.

NOTE:
When the speaker system is connected to only one speaker terminal (A or B) and both A and B selector switches are ON, there will be no sound.
Turn ON only the selector to which the speaker system is connected.

④ REMOTE SENSOR window

⑤ FUNCTION switches

Use to select playback source.
[**CD**] — Press when listening to compact disc playback with a CD player.
[**PHONO**] — Press when listening to record playback on a turntable.
[**TUNER**] — Press when listening to AM or FM broadcasts with a tuner.
[**TAPE**] — Press when listening to tape playback with a cassette deck.
[**VIDEO/AUX**] — Press when listening to programs from a component connected to the VIDEO/AUX terminals.
Selection can also be performed with the accessory remote control unit.

⑥ FUNCTION indicators

These indicators light to show the setting of FUNCTION switches.

⑦ MUTING switch

Use to temporarily cut out all audio signals.
When this function is ON, sounds will be cut off (VOLUME indicator will flash).
When turned OFF, the sound returns to its previous level. The muting ON/OFF function can also be operated by the accessory remote control unit.

⑧ VOLUME control/indicator

Use to adjust sound volume.
When operated by remote control, this control will rotate with the knob indicator flashing.
Adjustment can also be performed with the accessory remote control unit.

⑨ BALANCE control

Should normally be left in the center position. Adjust balance if the sound is louder from one of the speakers.If the right side is louder, turn toward the LEFT position, and if the left side is louder, turn toward the RIGHT position.

⑩ GRAPHIC EQUALIZER controls

These controls can be used to emphasize or de-emphasize sounds in the frequency bands 100 Hz, 330 Hz, 1 kHz, 3.3 kHz, and 10 kHz, thus allowing you to control tone quality. The center position of each control is the normal (flat) setting. When raised above the center position, the control frequency band is emphasized; when lowered, the band is de-emphasized.

⑪ EQUALIZER ON/OFF switch/indicators

When this switch is pressed, the GRAPHIC EQUALIZER control's indicators turn on, and its functions become operative.
When pressed once again. the indicators are turned off. Use this switch in the following manner:

[ON] : When using the equalizer to add sound compensation while performing program sources, and playing back and/or recording results.

[OFF] : When not using the equalizer, but playing back or recording program sources without compensation.

NOTE:
Equalizer ON/OFF indication is provided by a light on the equalizer switch itself on U.S. and Canadian models, or by control knob indicators on other models.

⑫ SPECTRUM ANALYZER

This display shows the condition of sound signals compensated with the graphic equalizer controls.
(Because the level indicator is connected to the input side, the indication does not change when the VOLUME control is turned.)

⑬ MULTI-ROOM indicator

This indicator is always lit, but if you connect an MR-100 optional Multi-Room remote control unit, it will flash when the MR-100 is receiving a remote control signal.

⑭ STANDBY/SLEEP indicator

- This indicator flashes when the accessory remote control unit is used to turn SLEEP key. When SLEEP key is ON, the indicator will flash. (Initially it will flash slowly, then gradually become faster.)
  Sixty minutes after the sleep timer is turned ON, the power switch will be turned to STANDBY automatically.
- This indicator lights when the accessory remote control unit or this unit is used to turn POWER key.

⑮ MIC jack

Connects to a six millimeter microphone plug.

⑯ MIC LEVEL control

Use to adjust microphone input level.

NOTE:
⑮ and ⑯ do not exist on U.S. and Canadian models.

This component features a built-in microcomputer which will recall the last-set positions of the following switches for up to about several days after the power cord is disconnected. As a result, when the power is turned ON again, the previously set positions will be recalled automatically:

- MUTING switch
- FUNCTION switch
- EQUALIZER ON/OFF switch

When the unit is not used for more than several days, the memorized setting positions will be erased, and returned to the following settings:

- MUTING switch ..... OFF
- FUNCTION switches ..... TUNER
- EQUALIZER ON/OFF switch ..... OFF

8. SPECIFICATIONS

Amplifier Section

U.S., Canadian models

Continuous average power output is 130 watts* per channel, min., at 8 ohms from 20 Hertz to 20,000 Hertz with no more than 0.05 % total harmonic distortion.

Other destination models

Music power
1 kHz, T.H.D. 10 %, 8 Ω ..... 350 W + 350 W
Peak music power
L + R channels 1,400W

Same for all models

Total harmonic distortion**
20 Hz to 20 kHz, 130 W, 8 Ω ..... 0.05 %
Input (Sensitivity/Impedance)
PHONO ..... 2.5 mV/50 kΩ
CD, VIDEO/AUX, TUNER, TAPE PLAY, ADAPTOR IN
..... 150 mV/50 kΩ
Phono Overload Level (T.H.D. 0.1%, 1 kHz) ..... 100 mV
Output (Level/Impedance)
TAPE REC, ADAPTOR OUT ..... 150 mV/2.2 kΩ
Frequency Response
PHONO 20 Hz to 20 kHz (RIAA equalization)
U.S., Canadian, U.S. Military models ..... ± 1 dB
Other destination models ..... ± 2 dB
CD, VIDEO/AUX, TUNER, TAPE PLAY, ADAPTOR IN
10 Hz to 50 kHz, U.S., Canadian, U.S. Military models ..... ± 3 dB
20 Hz to 50 kHz, Other destination models ..... ± 3 dB
Muting ..... − ∞
Graphic equalizer
100 Hz ..... ± 8 dB
330 Hz ..... ± 8 dB
1 kHz ..... ± 8 dB
3.3 kHz ..... ± 8 dB
10 kHz ..... ± 8 dB
Signal-to-Noise Ratio (IHF, Short circuited, A network)
U.S., Canadian, U.S. Military models
PHONO ..... 72 dB
CD, VIDEO/AUX, TUNER, TAPE PLAY, ADAPTOR IN ..... 96 dB
Other destination models
PHONO ..... 66 dB
CD, VIDEO/AUX, TUNER, TAPE PLAY, ADAPTOR IN ..... 92 dB

Miscellaneous

Power Requirements
U.S., Canadian models ..... AC 120 V, 60 Hz
Other destination models
..... AC 110 V/120 V − 127 V/220 V/240 V (Switchable), 50/60 Hz
Power Consumption
U.S., Canadian models ..... 480 W (UL), 620 VA (CSA)
Other destination models ..... 690 W
Dimensions ..... 420 (W) x 170 (H) x 336 (D) mm
16-1/2 (W) x 6-11/16 (H) x 13-1/4 (D) in
Weight (without package) ..... 9.1 kg (19 lb 10 oz)

Furnished parts

Remote Control Unit 1
Dry-cell batteries 2
Operating Instructions
(Stereo amplifier and tuner) 1
(Remote control unit) 1

NOTE:

* Measured pursuant to the Fedcral Trade Commission's Trade Regulation rule on Power Claims for Amplifier.
** Measured by audio spectrum analyzer.

NOTE:

- *Specifications and design subject to possible modification without notice due to improvements.*